

20V, 30mΩ, 6A, Dual N-Channel

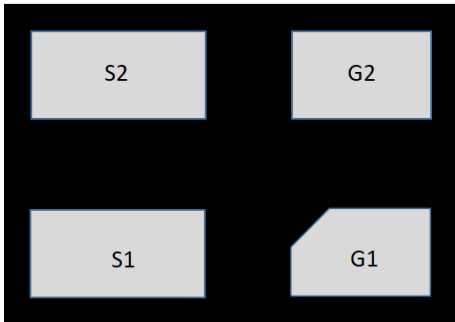
1. Features

- ◆ 20V MOSFET technology
- ◆ Low on-state resistance
- ◆ Fast switching
- ◆ $V_{gs} \pm 10V$

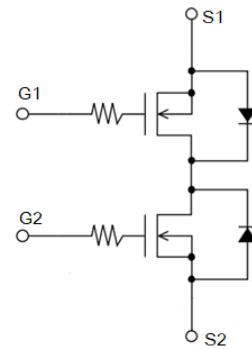
VSS	R _{SS(on)} Typ	I _S Max
20V	30 mΩ @ 4.5 V	6A
	33 mΩ @ 3.8 V	
	45 mΩ @ 2.5 V	

2. Applications

- ◆ 1-Cell Lithium-ion battery charging and discharging switch



DFN, 1.3(mm)×0.9(mm)×0.4 (mm)



Schematic diagram

3. Absolute max Ratings at Ta=25°C (Note1)

Parameter	Symbol	Maximum	Units
Source to Source Voltage	V_{SSS}	20	V
Gate to Source Voltage	V_{GSS}	10	V
Source Current (DC)	I_S	6	A
Source Current (Pulse) PW≤10μs, duty cycle≤1%	I_{SP}	30	A
Total Dissipation (Note 2)	P_T	0.42	W
Junction Temperature	T_j	150	C
Storage Temperature	T_{stg}	55 to +150	C

Note 1 : Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

4. Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Junction to Ambient (Note 2)	$R_{\theta JA}$	292	$^{\circ}\text{C}/\text{W}$

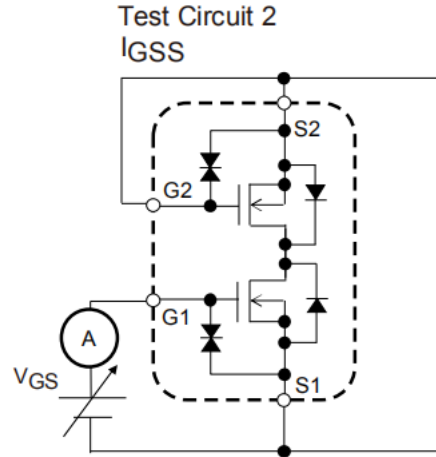
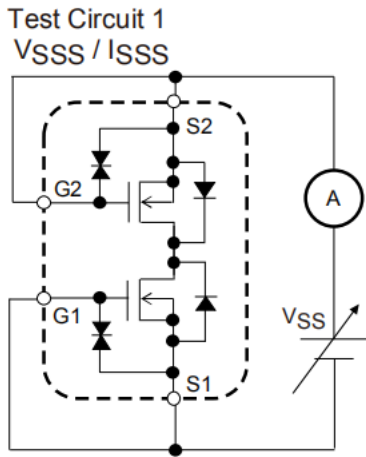
Note 2 : Mounted on FR4 board (25.4 mm×25.4 mm× t1.0 mm).FR4 board partially covered with copper pad (18 mm² area, 36 mm thickness).

5. Electrical characteristics at Ta=25°C (Note3)

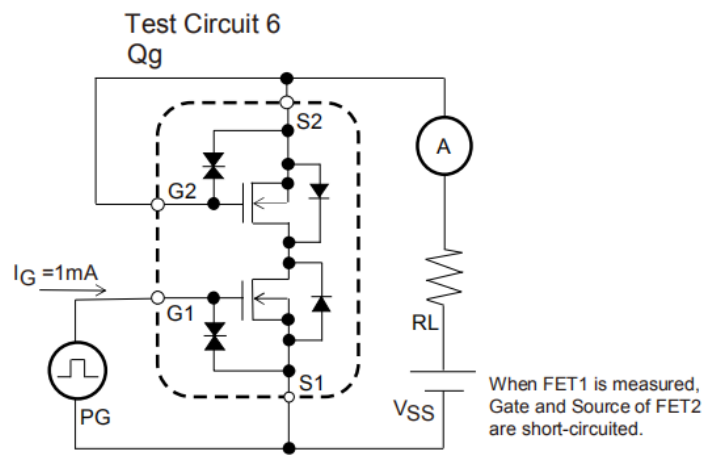
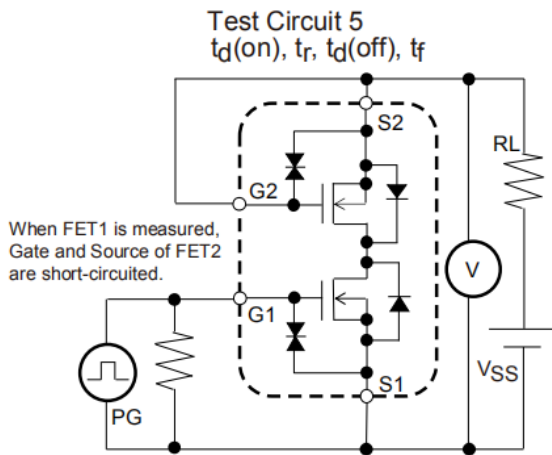
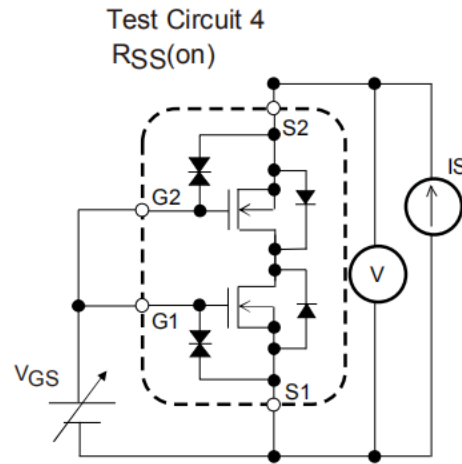
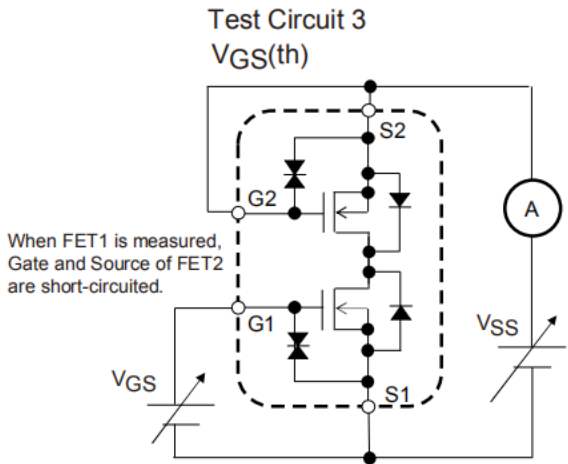
Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Units
Source to Source Breakdown Voltage	$V_{(BR)SSS}$	IS = 250uA, VGS = 0 V Test Circuit 1	20			V
Zero-Gate Voltage Source Current	I_{SSS}	VSS = 16 V, VGS = 0 V Test Circuit 1			1	μA
Gate to Source Leakage Current	I_{GSS1}	VGS = $\pm 10\text{V}$, VSS = 0 V Test Circuit 2			± 1	μA
Gate Threshold Voltage	$V_{GS(th)}$	VSS = 10V, IS = 250uA Test Circuit 3	0.4	0.7	1.3	V
Static Source to Source On-State Resistance	$R_{SS(on)}$	IS = 3 A, VGS = 4.5 V Test Circuit 4	-	30	38	m Ω
		IS = 3 A, VGS = 3.8 V Test Circuit 4	-	33	41	m Ω
		IS = 3 A, VGS = 2.5 V Test Circuit 4	-	45	60	m Ω
Turn-ON Delay Time	$t_{d(on)}$	VSS = 10 V, VGS = 4 V, IS = 3 A Test Circuit 5		100		ns
Rise Time	t_r			275		ns
Turn-OFF Delay Time	$t_{d(off)}$			650		ns
Fall Time	t_f			510		ns
Total Gate Charge	Q_g	VSS = 10 V, VGS = 4V, IS = 3 A Test Circuit 6		4		nC
Forward Source to Source Voltage	$V_F(S-S)$	IS=1A, VGS=0 Test Circuit 7	0.4	0.7	1	V

Note 3 : Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

6. Test circuits are example of measuring FET1 side

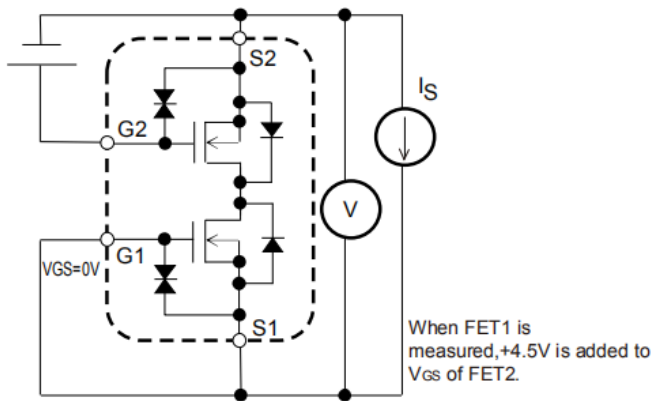


When FET1 is measured, Gate and Source of FET2 are short-circuited.

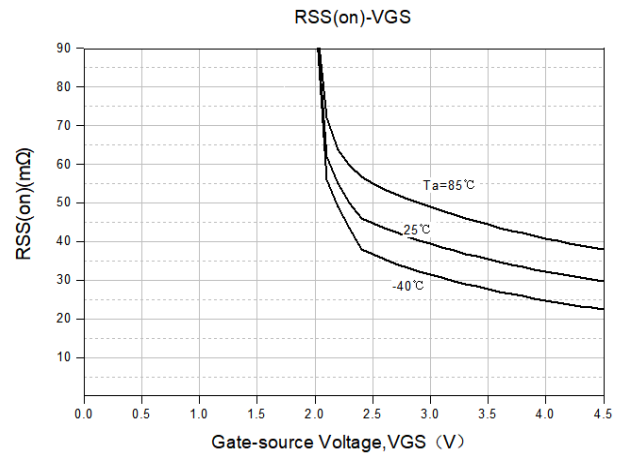
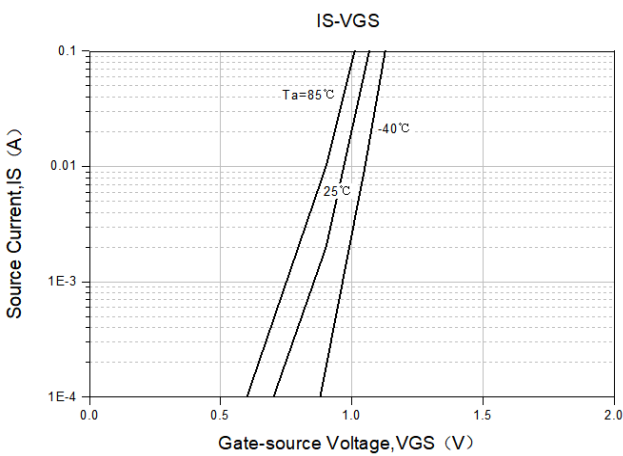
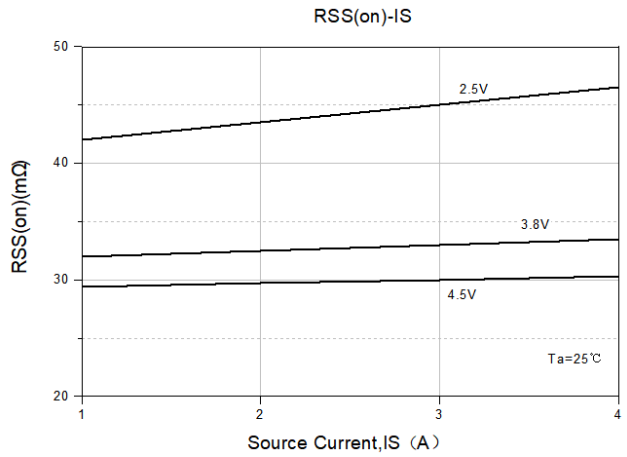
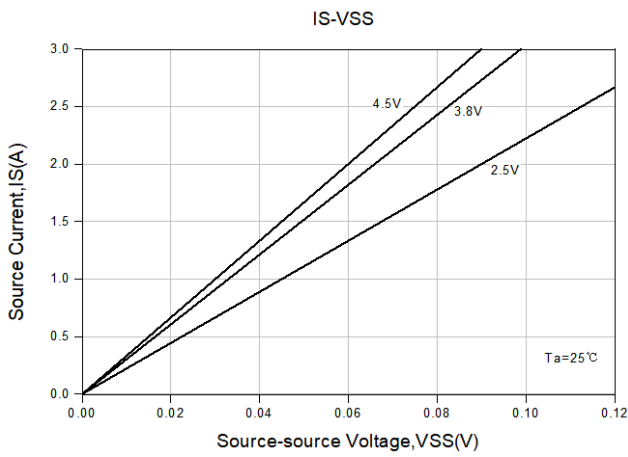


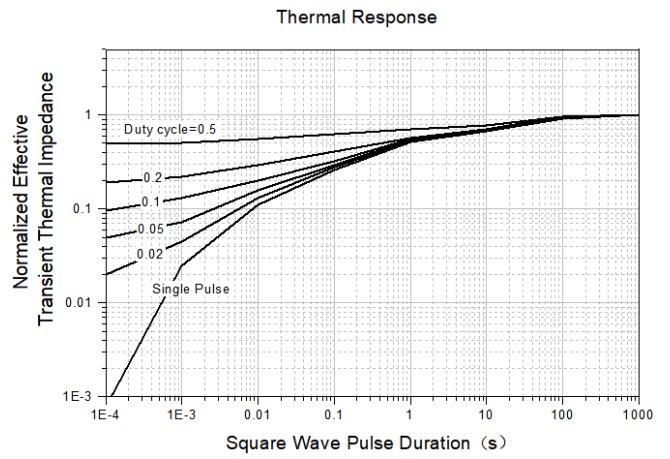
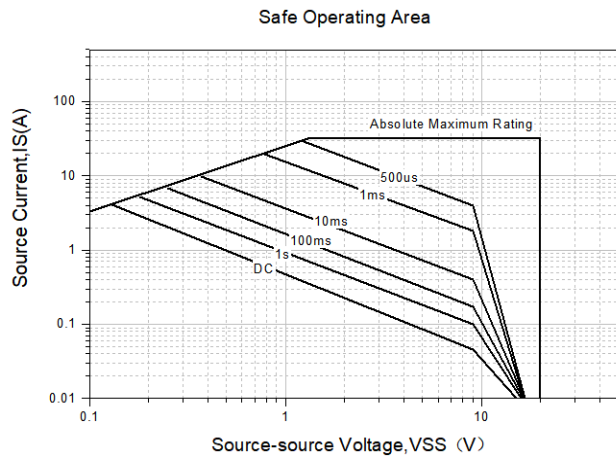
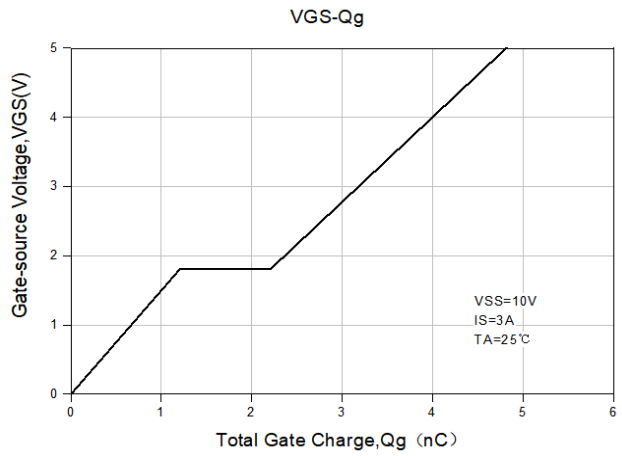
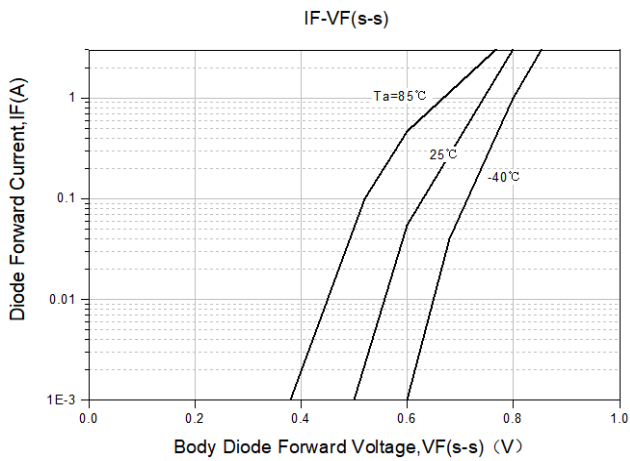
When FET1 is measured, Gate and Source of FET2 are short-circuited.

Test Circuit 7
VF(S-S)

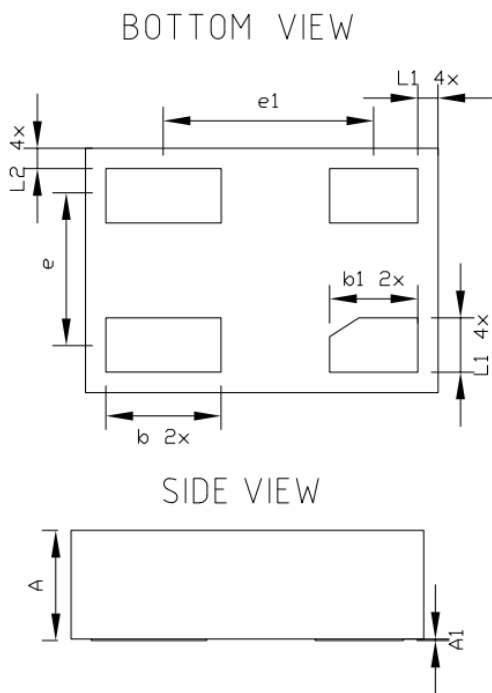


TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS





7.Package Dimensions



Symbol	Dimension in Millimeters		
	Normal	Min	Max
A	0.400	0.350	0.450
A1	---	---	0.005
D	1.300	1.250	1.350
E	0.900	0.850	0.950
b	0.475	0.425	0.525
b1	0.375	0.325	0.450
L	0.250	0.200	0.300
L1	0.075 REF		
L2	0.075 REF		
e	0.500 REF		
e1	0.725 REF		

8.Publisher

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9.Attention

The information herein is given to describe certain components and shall not be considered as warranted characteristics.

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